

METHOD OF MAKING THIN INTEGRATED CIRCUIT DEVICE PACKAGES WITH IMPROVED THERMAL PERFORMANCE AND INCREASED I/O DENSITY

ABSTRACT OF THE INVENTION

[0039] A semiconductor package comprising a non-conductive film which defines both top and bottom film surfaces, and includes a plurality of openings disposed therein. In addition to the film, the semiconductor package comprises a die pad which defines opposed top and bottom die pad surfaces. The top die pad surface is attached to the bottom film surface such that at least a portion of the top die pad surface is exposed within one of the openings. A plurality of leads at least partially circumvent the die pad, each of the leads defining opposed top and bottom lead surfaces. The top lead surface of each of the leads is attached to the bottom film surface such that at least a portion of the top lead surface of each of the leads is exposed within a respective one of the openings. Attached to the exposed portion of the top die pad surface is a semiconductor die which is electrically connected to the exposed portion of the top lead surface of at least one of the leads. A package body at least partially covers the semiconductor die, the film, the die pad and the leads such that the bottom die pad surface, the bottom lead surfaces, and at least a portion of the bottom film surface are exposed in the package body.